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Veröffentlichungsversion / Published Version
Zeitschriftenartikel / journal article

Empfohlene Zitierung / Suggested Citation:
Balasubramanian, V. (2020). Facilitating Information Exchange in Intercultural Virtual Teams. *interculture journal: Online-Zeitschrift für interkulturelle Studien*, *19*(33), 13-25. https://nbn-resolving.org/urn:nbn:de:0168-ssoar-73345-3

Facilitating Information Exchange in Intercultural Virtual Teams

Moderation von Wissensaustausch in interkulturellen virtuellen Teams

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Abstract (English)

Though knowledge and information exchange are vital for the success of virtual intercultural teams, there is often an unarticulated assumption that it will develop naturally in the course of a collaboration. Data gathered from virtual German-Indian engineering teams indicates that variances in cultural communication routines lead to knowledge / information withholding, whether intentional or accidental, and impair team functioning. Consequently, effective facilitation is needed to create and maintain reciprocal cognitive and socio-emotional information exchange. The biggest challenge in this venture is achieving the proper synthesis between the structures needed to provide stability and the agile, open-ended VOPA approach required in a VUCA environment. To this end, some of the methods available to promote knowledge exchange are reviewed for their benefits on both fronts.

Keywords: intercultural knowledge-exchange, information withholding, trust, structure plus VOPA interaction

Abstract (Deutsch)

Obwohl der Wissensaustausch in virtuellen interkulturellen Teams von besonderer Wichtigkeit ist, wird oft angenommen, dass er im Verlauf der Zusammenarbeit von alleine entsteht. Die Forschung an deutsch-indischen virtuellen Teams zeigt, dass kulturell unterschiedliche Kommunikationsmuster zum Zurückhalten von Informationen führen, sowohl beabsichtigt als auch unbeabsichtigt. Daher ist eine bewusste Strategie notwendig, um einen reziproken kognitiven und affektiven Informationsfluss zu etablieren und fortzusetzen. Die größte Herausforderung liegt darin, die Synthese zwischen stabilen Strukturen und der agilen, offenen Interaktion der VOPA-Vorgehensweise zu erreichen. Dazu werden einige der vorhandenen Methoden des Wissensaustauschs und ihre Beiträge zu Struktur / VOPA erörtert.

Schlagwörter: interkultureller Wissensaustausch, Zurückhalten von Informationen, Vertrauen, Struktur mit VOPA Interaktion

1. Introduction

While virtual tech environments have facilitated a range of global collaborative possibilities, the disappearance of spatial distance has not translated automatically into a corresponding disappearance of communicative distance (e.g. Cramton & Orvis 2003). There is general agreement that virtual and semi-virtual teams are more prone to miscommunication and impaired group functioning than both collocated teams and domestically outsourced projects (e.g. Heeks et al. 2001). Consequently, effective facilitation is vital for ensuring productive outcomes in intercultural virtual communication.

A primary impediment to group success is the lack of effective communication and knowledge sharing among members. It is of particular significance in virtual collaboration, where communication flows are the sole means of holding a team together. In process terms, information exchange ensures that potential risks are anticipated, quality issues are detected, and schedules are met. It promotes a climate of trust between team members when goals are accomplished. In knowledge-intensive fields it leads to innovation (Bartol & Srivastava 2002) through the synergies of newly created knowledge. Impaired information sharing can trigger a cascade of undesired outcomes and may even result in a complete breakdown of virtual communication.

Using research on German-Indian virtual tech teams, this article will consider the nature of knowledge / information exchange, possible impediments, and its management. Drawing on Edmondson & Zuzul's (2016) teaming routines model of creation, maintenance and change, some communicative strategies for facilitating knowledge and information flows will be discussed.

2. Information flows in virtual intercultural teams

An information flow is considered as vital for organizations as oxygen for human life (Al-Hakim 2008). The flow begins with teams, the fundamental building blocks of an organization whose essential function is to work towards a common goal with a clear purpose . When these building blocks are geographically dispersed, functioning can only be maintained by a high degree of communicative effort through the channels of technologically mediated communication (TMC).

The range of effort required varies with the degree of spatial and temporal dispersion of the teams . It also varies depending on whether the virtual team is working from a routine, process-based playbook, or whether it is a case-based, inquiry-based, or problem-based work scenario. Low-dispersion remote teams which share the same geography and standardized task routines require less communicative adjustment than high-dispersion cross-functional teams working across physical, status, and knowledge boundaries (cf. Edmonson 2012).

Apart from remote communication, virtual intercultural teams face the additional challenge of cultural variations which manifest themselves in diverging communicative practices and routines. A team may be considered a community of practice (CoP), i.e. a "group of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger et al. 2002:4). In the course of ongoing interaction, a CoP / team develops what may be termed its own 'culture'. As reflected in Social Representations Theory (Moscovici 1961/1976), a CoP 'culture' encapsulates the shared ideas, beliefs, and values elaborated by the collectivity. Each CoP is bound by a shared repertoire of experiences, stories, tools and ways of addressing recurring problems (Wenger & Wenger-Trayner 2015). This leads to CoP-specific behavioral routines, i.e. "repetitive, recognizable patterns of interdependent actions" (Feldman & Pentland 2003:95),

including those related to discourse.

Though virtual team CoPs are bound by shared goals, remote collaboration brings separate and often dissimilar cultural practices and routines together. As reciprocity plays a pivotal role in social relationships (Bolten 2014), the lack of recognizable communication patterns, additionally limited by technological media, can cause miscommunication. Without reciprocity, meaning making is disrupted, and unintended psychological meanings may be attributed to situational contexts or social interaction (Matsumoto 2007).

A far greater impediment than miscommunication is the absence of, or inadequacy of communication. Such communication gaps arise, for instance, when there is no sense of social presence (Short, Williams & Christie 1976), i.e. the degree to which people in virtual communication are perceived as being 'real'. Besides the lack of social presence, virtual actors also seek to minimize interaction to avoid uncertainty and risk. Miscommunication can be managed in interaction by repair strategies, but a lack of information exchange dries out a team's communicative lifeblood.

2.1 Information / Knowledge Sharing vs. Withholding

Knowledge exchange and knowledge sharing are overlapping concepts in research, as are information exchange and information sharing. It is defined as the flow of knowledge from someone who has it to someone who wants it (Kang & Kim 1999). While information flow may be one-way dissemination from one individual or group to another, the terms 'sharing' and 'exchange' emphasize the reciprocal nature of the action. Depending on context, the exchange may be bi-directional or multi-directional, from and to single or multiple sources, formal or informal.

The term 'information' is often conflated with the term 'knowledge', and even with the term 'data'. One possible distinction is that 'information' is more commonly used for a less formal exchange of relevant information or data, and to confirm, enhance or update a previous message. 'Knowledge' is seen as a contextually relevant combination of information and data, often as an expert opinion which contributes towards decision-making (cf. Serrat 2010). When viewed as an interlinked concept, 'information' is "an extraction from data that (…) has a capacity to perform useful work on an agent's knowledge base" (Boisot & Canals 2004). Both terms will be used situationally in the following pages to cover any sort of "useful" communication exchange that contributes to a context, whether casual or formal, socio-emotional or data-driven.

Knowledge withholding (KWI) is an attempt to withhold or conceal knowledge that contributes to team performance . It may be intentional or accidental and is subject to contextual interpretation. One party may view a situation as deliberate KWI while the other party may argue that the absence of sharing occurred accidentally.

The unfamiliarity of remote intercultural teams provides an ideal seedbed for knowledge withholding, both accidental and deliberate. Accidental with-holding occurs due to lack of cognizance that the information was of relevance to the others. Deliberate withholding can arise due to 'othering' dynamics, e.g. to protect or further one's own sub-group interests, or to avoid conflict. Additionally, KWI is far easier to contrive in a remote TMC environment where the likelihood of a personal encounter is non-existent.

Team structures and perceived roles also play a part in information sharing scenarios. Loosely knit matrix teams without clearly delineated hierarchies may cause ambiguity about the obligation to share, and hierarchically organized teams may cause information with-holding due to fear of repercussions.

Deliberate KWI is often related to the concept of psychological safety, a shared belief that the team is safe for interpersonal risk taking (Edmondson 2003). Fewer interpersonal bonds and perceived consequences of interpersonal risk lead to a choice to withhold information. Edmondson (2003) proposes four anticipated risks to loss of face or image: being seen as ignorant, incompetent, negative, or disruptive. When individuals, teams or organizations face these risks, they attempt to minimize them by resorting to verbal self-monitoring. KWI strategies ranging from euphemistic language to non-disclosure are deployed to minimize or to avoid negative consequences.

In the German-Indian virtual tech teams studied over a period of five years, an oft-cited divergence revolved around the mutual lack of information exchange, whether related to seeking information ('pull' communication / 'Holschuld'), giving information ('push' communication / 'Bringschuld'), verifying information (i.e., engaging in communication exchanges designed to increase understanding or clarification), or engaging in communication exchanges designed to increase cognitive and affective understanding (Cegala et al. 1996).

While both virtual CoPs were broadly in agreement regarding the lack of information exchange, divergences were apparent regarding the obligations involved. The fundamental issue concerned who was responsible for providing the pertinent information ('push' / 'Bringschuld') versus who was responsible for eliciting it ('pull' / 'Holschuld'). Self-ascribed variances in doxas and cultural routines formed the backdrop to these divergences and led to unfulfilled reciprocal expectations.

The tech teams based in Germany perceived cooperation as a joint quest for perfect technological solutions, with the social mediation of technology (Orr 1997) playing a secondary role (cf. Mahadevan 2012). Consequently, interchanges were ideally to be organized along the principles of efficiency revolving around a fact-oriented, expertcentered true-false logic (cf. Nazarkiewicz 2012). The interests of goal-accomplishment and efficiency would be best served by proactive task communication from the service provider.

Wir haben die Erfahrung, es kommen keine Rückfragen. Auch wenn Unklarheiten da sind. Es wird geschwiegen, oder man muss ein paar Mal Pingpong spielen, bis die Sache endlich läuft. Schon aufwendig. (German participant)

The Indian CoPs were more likely to see the lack of information exchange in terms of impoverished communication routines which did not facilitate disclosure about physical, cognitive, or affective states. The perceived absence of social presence, unsolicited support, and benevolence signaling impeded an uninhibited flow of communication on their part. The perceived power asymmetry in favor of the 'client' German CoP gave rise to risk-avoidant behavior to reduce potential repercussions:

My question is how to get support. Must I ask proactively? (…) Is it okay for me to ask or not? Will they think badly of me? (Indian participant)

As information exchange subsumes both cognitive and affective elements (Cegala et al. 1996), the attention of the virtual teams appear to be directed at two opposite sides of the knowledge-sharing coin – one largely cognitive, the other largely socioemotional. Such dissonances could have been prevented at the outset by facilitating an effective information exchange on self-categorization, norms, and role expectations.

There are two essentials for cognitive and affective information exchange in virtual teams: one is the availability of rich communication systems and the other is the creation of trust (cf. Jarvenpaa et al.1998), mutually connected through a chicken-and-egg loop (Hubig 2014). Successful communication

promotes a climate of trust which, in turn, encourages a free flow of communication. TMC often constrains the creation of trust (Jarvenpaa et al. 1998) and the resulting upward spiral of information exchange.

3. Trust and Information Exchange

Mayer et al. (1995) put forward three trust factors: 1) competence in a certain domain, 2) integrity, i.e. adherence to a set of work principles and 3) benevolence, i.e. *"the extent to which a trustee is believed to feel interpersonal care and concern and the willingness to do good to the trustor"* (Jarvenpaa et al.1998:31). Integrated trust includes all three factors (e.g. Paul & McDaniel 2004).

Scholars also distinguish between two broad categories of trust: cognition-based trust and affect-based trust (McAllister 1995). As competence and integrity are performance-relevant cognitions, they may be grouped under the category of cognition-based trust (McAllister 1995). Benevolence trust falls under the category of affect-based trust grounded upon expressions of "genuine care and concern for the welfare" of the other party (McAllister 1995:26).

Competence trust in the skills and abilities of team colleagues is highly relevant to knowledge-intensive work situations. Benevolence trust is equally important for encouraging knowledge and information sharing, particularly on problematic or uncertain issues. It engenders a climate of psychological safety and minimizes perceived risks accruing from the disclosure of sensitive but crucial information such as mistakes or need for help.

Both ends of a hierarchy spectrum, whether clients or service-providers, are more prone to sharing information when they are certain that the message, no matter how critical the content, is seen through a benevolence lens by the recipient and attributed to benign motives.

It's hard to be totally open with colleagues you hardly know. They say 'colleagues' because it's basically the same company but actually they're actually our clients. Who can be really open with a client if there's no relationship, you tell me. (Indian participant)

The two cognition-based factors of competence and integrity are far more readily identifiable in virtual contexts by the punctuality, quality, or reliability of deliverables. Benevolence, on the other hand, is a more diffuse trust factor which is more easily conveyed in face-to-face interaction and gradually built up over time. As first suggested in Allport's Contact Hypothesis (1954), collocated settings offer a shared local context for understanding, multiple channels to convey subtlety and nuances, and easy socializing and social bonding.

Viele vom Team haben Zeit mit uns verbracht – mehrere Wochen bis Monate und es hat sich als sehr hilfreich erwiesen, nicht nur um sie kennen zu lernen, sondern auch um einen Einblick in unsere Kultur zu geben. Wir haben das Wir-Gefühl entwickelt und es wurde besser je länger sie hier geblieben sind. Wir haben viele Probleme gemeinsam beseitigen können und es hat sich sehr gut entwickelt seither. (German participant)

Technologically mediated communication (TMC) lacks many of these taken-for-granted affordances to foster benevolence trust. To enhance information sharing in intercultural virtual teams, it is necessary to pursue a sustained communicative strategy, starting from its inception, then facilitated through consistent agile maintenance. Conventional knowledge-exchange approaches call for re-evaluation in today's VUCA (volatile, uncertain, complex, ambiguous) context. On the one hand, employees suddenly, and not of their own volition, find themselves cast into in an unknown work environment. Confronted with uncertainty, actors seek to win back a sense of control through the stable,

conventionalized structures of a common work 'culture':

Trotz allem kommt es in der Zusammenarbeit immer wieder zu Überraschungen und deswegen lautet meine Frage: Wie kann ich für einen dauerhaften und stabilen Austausch sorgen? (German participant)

On the other hand, what is collaboratively required are dynamic, open-ended, interactional processes (VOPA) coupled with a willingness to accept ambiguity. Finding the right equilibrium between structure ('culture') and agile interaction ('interculture') is the true challenge for facilitating today's global teams.
The following paragraphs will deal with ways of synthesizing the global actors' need for stability with the VOPA approach.

4. Initiation of Knowledge Exchange

Structures are a justifiable need when approaching new, unchartered territory. The first developmental stages of any group before it reaches the final performing stage - i.e. forming, storming and norming - have been well-documented in practical research (Tuckman 1965, 1977). Where collocated teams can be predicted to progress to effective performing sooner or later, intercultural virtual teams often remain trapped in the initial forming and storming stages until a collapse is imminent.
Interactants at the start of intercultural collaboration are faced with uncertainties on multiple fronts and would be overwhelmed by a free-flow approach. Therefore, the initial stages of intercultural collaboration require a certain measure of structure to prevent uncertainty and ambiguity from increasing individual stress and torpedoing the accomplishment of goals.
Structures for information exchange are best established at the earliest possible stage of the venture, through interactive 'kick-off' events, for instance. Initial information exchange may be task-related, e.g. regarding team design (structures, goals, processes), technical expertise, and training (Powell et al. 2004). Technical and knowledge needs for knowledge-based teams can be assessed by 'transactive learning' (Wegner 1986), i.e. the process of sharing information about the capabilities and boundaries of knowledge that exist among members of a group.
However, the boundary between task-related issues and their socio-emotional implications is a fuzzy one: sharing of information regarding technical expertise and training needs, for example, may be inhibited by concerns about losing face. It is therefore equally important to lay the foundations for socioemotional trust processes to promote information sharing.

Der Einstieg war relativ schwer – einen guten Kontakt aufzubauen. Da war keine Unfreundlichkeit, sondern eine Distanz, die offene Kommunikation verhindert hat (German participant)

Face-to-face 'kick-off' meetings are an oft-underestimated management tool for projects with both low and high management maturity (Besner and Hobbs 2004). Though video-assisted remote communication in real time may provide a workable alternative for the face-to-face element, it is generally acknowledged that added value is provided by proximate meetings at the outset (Duarte and Snyder 2006) where it is incumbent on the facilitator to first establish relationships through commonplace communicative interchange. A shared geographical location not only reduces spatio-temporal distance but also minimizes subjective distance i.e., a team's perception of distance between its members (Siebdrat et al. 2009). Task-related information is easier to share synchronously, such as the 'hidden profiles' of the unique knowledge and specialized skills possessed by each team member (cf. Lavery et al. 1999).
Proximate interaction accelerates the creation of interpersonal bonds through immediacy and free social intercourse. It creates a "centre of meaning, or field

of care (…) based on human experience, social relationships, emotions and thoughts" (Stedman 2002:562). Unless met with indifference or hostility by the partner CoP, interaction at individual and group levels contributes to relationship formation and lays the foundation for its maintenance.

Ein Schlüssel zum Erfolg war sicherlich, dass wir anfangs miteinander Zeit verbracht haben und auf informeller Ebene miteinander austauschen konnten. (German participant)

They are basically really good guys when you get to know them, but it's hard to figure that out if you only interact online. Luckily some of the team came to visit us and then the relationship started to change. (Indian participant)

A prerequisite is the presence of a safe space in which information can be shared without reservations. Nonaka & Konno (1998) suggest the traditional Japanese concept of Ba for a space in which knowledge is created.

" .. Ba can be thought of as a shared space for emerging relationships. This can be physical (e.g., office, dispersed business space), virtual (e.g., email, teleconference), mental (e.g., shared experiences, ideas, ideals) or any combination of them. (…) Ba provides a platform for advancing individual and/or collective knowledge" (Nonaka & Konno 1998:40)

Kiwan & Lazaric (2019) propose two types of shared space in work interaction. One is experimental space for performative experimentation, and the other is reflective space which permits discussion of performance at a meta-level. Both spaces are required for information to be exchanged and interpreted to create knowledge (cf. Nonaka & Konno 1998). Social experimentation is initiated in the 'conversational space' (Baker et al.2002) of a 'kick-off' meeting, while facilitated discussions accompanied by debriefings constitute the reflective space.
A debriefing is "a process involving the active participation of learners, guided by a facilitator or instructor whose primary goal is to identify and close gaps in knowledge and skills" (Raemer et al. 2011, p. S52). It is a proven method for the exchange of tacit knowledge which tends to be otherwise overlooked. Tacit knowledge includes

"..implicit relations, conventions, subtle cues, untold rules of thumb, recognizable intuitions, specific perceptions, well-tuned sensitivities, embodied understanding, underlying assumptions, and shared world views" (Wenger 1998:47)

It forms the basis for assumptions and reciprocal expectations. Meta-level debriefings are useful to elicit organizational, CoP and individual expectations, whether explicit or tacit, to serve as a starting point for the creation of a common vision.
Articulating a collaborate vision requires equal and active participation from all the stakeholders in the enterprise (Edmondson & Zuzul 2016). It needs to be structured in such a way that conversation and co-creation are elicited from diverse team members (ibid). A buy-in from all parties is crucial to develop a harmonized approach tailored to meet the requirements of the collaborating teams.
One instrument for a shared vision might be drawing up an initial road map for structuring and coordinating future communication routines. The four classic project management parameters usually suggested are a) what is to be shared, b) by / to whom, c) when, and d) how (medium of communication used) (PMBOK guide 2007). The accompanying e) why question in the process of reflection is highly relevant in intercultural teams as it sheds light on the intersubjective cultural positioning of each CoP's expectations.
This initial guideline introduces a newly created shared repertoire of routines to overcome communicative divergences. One oft-cited divergence in Indian-German team interaction, for example, is communicative signaling for the refusal of requests:

For us in India it is not acceptable generally to say no to anyone – we learn not to use it so often unless it is absolutely necessary. (Indian participant)

Wenn ich einen Auftrag bekomme, der nicht ganz passt, sage ich schon mal vorsichtshalber 'nein', bevor ich etwas verspreche, was ich nicht einhalten kann. (German participant)

The Indian CoP member's observation addresses the value of showing accommodation behavior to maintain reciprocal face (positive image). The German member's remark illustrates the category membership values shared in his COP's tech context: maintaining reliability to avoid loss of face, and expressing 'voice' or speaking up when concerns are sensed (cf. Van Dyne & LePine 2003).
Facilitation in divergent intercultural settings requires neutrality, skillful handling and consistent involvement. The intercultural facilitator needs to be active on several fronts: establishing structures, fostering open dialogue, helping to bring about beneficial connections within the team, preventing disagreements from becoming conflicts, and assisting teams to find solutions (Six 1990).
Such 'kick-off' events offer a certain measure of structure along with processual VOPA elements. Though the meetings themselves and the tasks involved are structured, they are ideally to be facilitated a such a way that networking, bonding, open interchange and participation are accomplished.

4.1 Maintaining Information Exchange

The initial life cycle stage of virtual teams − planning, inception, organizing – may be jump-started by establishing an initial communicative superstructure, but this is only the first step of the journey. The maintenance of information exchange requires more of the agile, processual VOPA approach which includes a continuous process of negotiation, creation and recreation (Bolten 2020).

Teams per se are networks which interact adaptively, interdependently, and dynamically towards a common goal (Salas et al. 2000). Network theory posits that actors (or 'nodes') in a social environment are linked to one another by reciprocal relational ties, both directly and indirectly. The pattern of ties in a network yields a particular structure which interacts with a given process (such as information flow) to generate outcomes for actors or the network as a whole (e.g. Gamper 2020).
Multi-channel, reciprocal, evolving communication flows encourage flexible handling of goals and networks of relationships. As far as goals are concerned, the effectiveness of a team lies not in accumulating knowledge, but in applying it in the workplace. Knowledge is not an absolute, finite concept in practice situations which are both case-based and thus temporary in nature. Besides, tacit knowledge is an ongoing process which is generated and transferred during social interaction (Nonaka & Takeuchi 1995). A pre-planned knowledge flow structure cannot accommodate to the change dynamics, the twists and turns of a knowledge-based virtual collaboration.
Relational trust, whether face-to-face or remote, is a gradual process that may be seen as a process of 'trusting' rather than ‚trust' as an outcome (Möllering 2013). As the actors gain familiarity, the components and nature of trust also change and evolve. Effort is required to sustain initial goodwill and trust in virtual contexts. First encounters, no matter how social in nature, are not adequate to create the "surface tension" (Bolten 2007:18) that can withstand the inevitable ups and downs of a remote collaboration.
Fragile initial trust may easily be threatened by resurfacing subgroup dynamics once the teams return to their own locations. Virtual teams are generally more prone to fracture into subgroups characterized by an us-vs-them mentality (Hinds et al. 2014). Physically present team members are

categorized as belonging to the ingroup while the physically absent are relegated to the outgroup (Polzer et al. 2006). Without regular interaction on cognitive and socio-emotional levels, there is the risk of moving away from the common vision and falling back into former communication patterns:

Das Problem mit einem Wort – wenig Rückmeldung. Liegt es an der Arbeitsbelastung? Oder woran liegt es? Wenn sie hier sind, klappt es perfekt, aber sobald sie auf der anderen Seite der Welthalbkugel sind, kommt auf einmal nichts mehr. (German participant)

In short, without consistent but adaptive VOPA maintenance and facilitation, virtual teams are likely to lose their fledgling team cohesion and be faced with fractured information flows.

5. TMC and Knowledge Exchange

Therefore, as Wegner points out about transactive memory, the responsibility for knowledge / information exchange and trust-building should not be left to chance. TMC does not provide the same opportunities for creating relational ties and affective trust as collocation does (Paul & McDaniel 2004). Technological media is not a substitution for proximate interaction, but it is nonetheless the sole enabler to replicate the relational benefits of proximate interaction. It is therefore essential to establish a pervasive communication technology with 'rich' media channels. As described in Media Richness Theory, the richness of media depends on "the potential information-carrying capacity of data" (Daft & Lengel 1986:196). Every item which provides substantial new understanding, including visual cues, adds to it richness (ibid).
In order to ensure that the proposed means of TMC are 'rich' enough for the requirements of the team and the organization, existing IT infrastructure and tools should be initially mapped and assessed for the information value they provide. If redesigning / customizing is necessary, it should be done participatively, by using input from all stakeholders.
However, the effort to establish rich channels will have been in vain if the infrastructure is not utilized in everyday practice. This research indicates that the potential offered by multi-media multipoint real-time technology (including video and chat) was not fully exploited. This was partly due to technical reasons such as inadequate internet speed and hardware / software capabilities (Duarte & Snyder 2006), but also for reasons of data protection and convenience (saving time, finding a conference room etc.). On occasion, it was even deemed irrelevant:

Die Technik ist schon irgendwie vorhanden, aber lohnt sich die ganze Mühe? (German participant)

Synchronous, real-time video interaction approximates the high capacity for information-carrying provided by face-to-face encounters. Video conferencing permits performative experimentation in groups, e.g. by participative brainstorming, screen-sharing and accompanying chat media. Flexibility, participation and experimentation (Edmonson & Zuzul 2016) are the watchwords in this process.
When they are not boxed in by single-minded task focus and time constraints, regular video conferences can create a reflective space for self-disclosure and unexpected insights, particularly on cultural issues:

Wir halten regelmäßige Statusmeetings ab, egal ob wir etwas zu besprechen haben oder nicht. Zum Beispiel haben wir neulich über die Streiks (Bangalore, Januar 2019) geredet. Dabei tauchen manchmal unerwartet Fragen zur Arbeit auf, die sonst nicht gestellt worden wären. Oder man kriegt eine Erklärung für etwas, was schiefgelaufen ist. (German participant)

Not every medium is equally suitable for all types of information exchange. In-company chat channels, for example, are a better source of information to admit off-the-record vulnerability than mails. They are also helpful for

maintaining dyadic interpersonal ties by permitting pictures or emoticons.

Scrum (Scrum Guide 2017) is a popular method of project planning and process management used in the tech teams studied. It is intended to optimize predictability and control risk, but also offers an effective instrument for iterative and incremental knowledge exchange. Procedural and cultural issues can be addressed through the three pillars of 'transparency' for a common understanding, 'inspection' to detect undesirable variances, and 'adaptation' to adjust for the deviation.
Thus, Scrum offers structure through routines and, at the same time, permits VOPA interaction. Regularity of communication is imperative in virtual collaboration . Scrum calls for a daily meeting ('scrum') which is a virtual experimental space for goal-directed knowledge creation. Its cyclical 'reviews' and 'retrospectives' offer a reflective space for intercultural exchange so as to refigure approaches for achieving goals. In the role of a coach, a 'Scrum Master' can facilitate cognitive and affective understanding to create a sense of team cohesion. By using procedural, 'how-to' communication (Kauffeld & Lehmann-Willenbrock 2012), the team can be guided through the interaction, and knowledge-exchange expectations aligned. At the same time, relational ties and trust gradually build up as team members learn to navigate and negotiate each other's individual and cultural particularities.
However, it is advisable to keep in mind that richness of information exchange can tip over into information overload. A constant focus on communicative interaction can be counter-productive, with information overload leading to fatigue syndrome and, ultimately, to reduced exchange.
All in all, facilitating effective knowledge exchange in virtual intercultural teams requires structured regularity coupled with VOPA suppleness and reflective recursivity in interaction. The outlay in terms of communicative effort, time, and technologies is probably higher than it would be for single-culture collocated settings. At the same time, if the potential synergies of intercultural virtual collaboration are to be leveraged, it should be well worth the effort.

This article is based on research for a forthcoming doctoral thesis entitled "Gap Factors in Intercultural Communication: A Study of German-Indian engineering/ tech teams."

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